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(54) Title: LOW-COST HIGH-PERFORMANCE NO-FLOW UNDERFILLS FOR FLIP-CHIP APPLICATIONS

(57) Abstract

A no-flow underfill encapsulant for flip-chip technology using a viscosity-controlling agent such as fumed silica and a coupling agent in a formulation comprising an epoxy resin(s), an anhydride hardener, an accelerator, a surfactant and a fluxing agent provides optimized flow and a curing reaction only after attaining the maximum solder bump reflow temperature of from about 190-230 degrees centigrade.

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